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REMARKS

Reconsideration of the present application is respectfully requested.

Claims 1 – 8 have been rejected under 35 U.S.C. 112, second paragraph as being indefinite. More specifically, the Examiner has asserted that certain language in claim 1 is indefinite. For the reasons discussed below, these claims, as amended, are now in condition for allowance.

Applicant has amended claim 1 to adopt the corrections suggested by the Examiner. However, Applicant has assumed that the assertion that “orbiting member” should be replaced with --orbiting member-- is a typographical error.

Therefore, because amended claim 1 recites structure in a definite manner, it is respectfully requested that the Examiner’s rejection of the claims under 35 U.S.C. 112 be withdrawn.

Claims 1 and 3 – 8 have been rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,079,996 to Abousabha et al. (Abousabha) in view of U.S. Patent No. 4,221,545 to Terauchi. For the reasons discussed below, these claims, as amended, are now in condition for allowance.

Claim 1 has been amended to recite the novel embodiment disclosed, for example, on pgs. 8 – 9 in which a constraining member 116 is movable to enable the swing member 110 to vary its swing angle for a variable displacement action. A pin 119 disposed on an axis L2 connects a second rotating member 117 to a first rotating member 115 by engaging with the holes shown in FIG. 3 defined on the first and second rotating members. The first rotating member 115 is connected to the constraining member 116.

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Abousabha discloses a variable displacement compressor having a constant velocity joint 64 for supporting the wobble plate 24 (swing member). The shaft 22 is movably supported in an axial direction for varying the swing angle of the wobble plate.

On pg, 2, last paragraph of the office action it has been asserted that the shaft 22 of Abousabha discloses a constraining member and that the outer race 66 discloses a first rotatable member. Applicant respectfully disagrees. Abousabha explicitly discloses on col. 4, line 26 that the outer race 66 is nonrotatable. Applicant questions how the shaft 22 could be considered to be constraining the outer race 66 from rotating as recited in amended claim 1 when the outer race 66 is disclosed as being nonrotatable.

Further, Abousabha fails to teach or suggest a pin engaged with holes defined on a first rotating member and a second rotating member for supporting the wobble plate. Rather, Abousabha employs a complex and expensive constant velocity joint for supporting the wobble plate. The constant velocity joint 64 is complex and expensive due to its necessary precision machining process.

Terauchi discloses compressors having a wobble plate 27, joints for supporting the wobble plate 27, a Hooke's type universal joint (see FIG. 1) and a constant velocity joint (see FIG. 7). However, Terauchi also fails to teach or suggest a constraining member or a pin engaged with holes defined on a first rotating member and a second rotating member.

Therefore, because Abousabha and Terauchi fail to teach or suggest a constraining member or a pin engaged with holes defined on a first rotating member and a second rotating member, it is respectfully requested that the rejection under 35 U.S.C. 103(a) of claim 1, as well as dependent claims 3 – 8, be withdrawn.

The Examiner has asserted that one skilled in the art would have been motivated to modify Abousabha in view of Terauchi as a matter of engineering expediency. Applicant

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respectfully traverses the procedural validity of this assertion. There must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. (See In re Vaeck, 947 F.2d 488 (Fed. Cir. 1991), cited in MPEP 2142, Aug. 2001). In the present case, the Examiner has not alleged suggestion or motivation in the references themselves. Rather, the Examiner has merely made a broad assertion. It should be noted that the Examiner is assertion that one skilled in the art would have been motivated to make major changes to Abousabha and Terauchi. For example, the Examiner is asserting that a skilled artisan would replace the housing of Terauchi with the housing of Abousabha without being supported by the alleged constraining member.

Therefore, because the Examiner has failed to assert suggestion or motivation in the references themselves, it is respectfully submitted that the Examiner's rejection of claim 1 and 3 – 8 under 35 U.S.C. 103(a) is procedurally invalid and should be withdrawn.

Further, modifying Abousabha to include the swing support mechanism of Terauchi would result in an inoperable device. If a proposed modification would render the prior art invention unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. (See In re Gordon, 733 F.3d 900 (Fed. Cir. 1984); Cited in MPEP 2143.01 Aug. 2001). The modification would result in an inoperable device because Terauchi does not disclose a variable displacement compressor. The shaft 31 of Terauchi which the Examiner alleged is a constraining member is movable only for urging the wobble plate 27 onto the cam rotor. The movable stroke is not enough to enable the wobble plate to vary its swing angle. For example, the Hooke's type joint shown in FIG. 1 employs the shafts 341a, 341b and the grooves 312a, 312b, 352a, 352b for engaging other parts. If the shaft 31 moved in an axial direction to vary the swing angle, the joint may be disassembled and no longer able to

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support the wobble plate. Therefore, the joints disclosed in Terauchi cannot be used for a variable displacement compressor. In addition, this invention is directed to the spherical convex surface and the spherical concave surface for receiving axial load.

Therefore, because modifying Abousabha to include the swing support mechanism of Terauchi would result in an inoperable device, one skilled in the art would not have been motivated to make such a modification. In view of this conclusion, it is respectfully requested that the rejection under 35 U.S.C. 103(a) of claim 1, as well as dependent claims 3 – 8, be withdrawn.

Claims 1, 2 and 8 have been rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,761,202 to Mitchell. For the reasons discussed below, these claims, as amended, are now in condition for allowance.

Mitchell discloses a compressor having a plate 51 and a support 37 (Hooke's type universal joint) and a movable shaft 36. However, the shaft 36 does not have sufficient stroke to enable the plate 51 to function as a variable displacement member. Further, Mitchell also fails to teach or suggest a pin engaged with holes defined on a first rotating member and a second rotating member. Rather, as shown in FIGS. 6 and 9, the shafts 48 are engaged with the grooves 50.

As mentioned above, Terauchi fails to teach or suggest a pin engaged with holes defined on a first rotating member and a second rotating member.

Therefore, because Mitchell and Terauchi fail to teach or suggest a pin engaged with holes defined on a first rotating member and a second rotating member, it is respectfully requested that the rejection under 35 U.S.C. 103(a) of claim 1, as well as dependent claims 2 and 8, be withdrawn.

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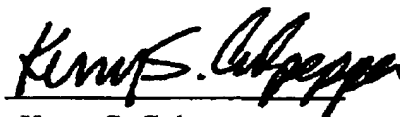
The Examiner has asserted that one skilled in the art would have been motivated to modify Mitchell in view of Terauchi as a matter of engineering expediency. Applicant repeats the procedural invalidity arguments made above against the procedural validity of the asserted motivation to modify Mitchell in view of Terauchi.

New claims 9 – 12 are presented for examination. These claims recite features that further distinguish the present invention from the art of record. Support for new claim 9 can be found on, for example, pg. 12, lines 23 – 25. Support for new claims 10 and 12 can be found on, for example, pg. 9, lines 3 – 9. Support for new claim 11 can be found on, for example, pg. 13, lines 8 – 13.

In view of the above amendments and remarks, the present application is now believed to be in condition for allowance. A prompt notice to that effect is respectfully requested.

Although no additional fees are believed to be due, permission is hereby given to charge any unforeseen fees to deposit account 50-1147.

Respectfully submitted,



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MARKED UP VERSION OF THE AMENDED CLAIMS

Please and amend claims 1 and 2 as follows:

1. (Amended) A fluid pump comprising:

a housing;

a shaft rotatably supported by said housing;

a cylinder bore formed within said housing;

a piston accommodated in said cylinder bore, said piston reciprocating in said cylinder bore;

[a] an orbiting member integrally rotating with said shaft, said orbiting member including a slant plane slanting with respect to the shaft;

a swing member connected to said [slant plane] orbiting member through a thrust bearing, said swing member swinging with a rotation of said rotating member to reciprocate said piston; and

a swing support mechanism [like a universal joint] supporting said swing member such that said swing member swings, wherein said swing support mechanism includes:

a first rotating member capable of rotating around a first axis perpendicular to a center line of said shaft[.];

a constraining member connected to said first rotating member and restraining said first rotating member from rotating around the center line, said constraining member being supported on said housing in a movable manner along the center line; and

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a second rotating member connected to said first rotating member through a pin disposed on a second axis perpendicular to the center line and crossing the first axis such that said second rotating member rotates around [a] the second axis [perpendicular to the center line and crossing the first axis], [and] said pin being engaged with a hole defined on said first rotating member along the second axis and with a hole defined on said second rotating member along the second axis, wherein said swing member is connected to said second rotating member.

2. (Amended) A fluid pump according to claim 1, wherein
said first and second rotating members are substantially formed in a ring,
said first rotating member is connected to said constraining member through a cylindrically formed first pin, and
said pin connecting said second rotating member [is connected] to said first rotating member [through] is provided as a cylindrically formed second pin.

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